REMARKS

Claims 16, 18-27, 29 and 30 are pending in this application.

Claim Amendments

By this amendment, the dependency of claim 25 is amended. No new matter is added by this amendment.

Objection to Claim 25

Claim 25 stands objected to as being dependent upon a canceled claim. In response, claim 25 is amended to depend from claim 16.

The objection is thus moot and should be withdrawn.

Rejection of Claims 16, 18-22 and 24-27 under 35 U.S.C. § 103(a)

Claims 16, 18-22 and 24-27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Buswell et al in view of Lesieur et al. This rejection is respectfully traversed.

Buswell discloses a fuel cell system, and a method of operating a fuel cell system in which a primary hydrocarbon fuel is subjected to fuel processing to produce a hydrogen-rich fuel stream that is ultimately delivered to a fuel cell. As part of the processing, the primary hydrocarbon fuel is subjected to hydrodesulfurization – see column 7, line 56 to column 8, line 5 of the reference. The fuel is then subjected to other processes before a portion of the resultant fuel stream is tapped off and directed to a hydrogen recycle compressor to provide hydrogen for

hydrodesulfurization of the primary hydrocarbon fuel. The various processes involved are described at column 8, lines 5-59, with lines 59-64 indicating that a portion of the processed hydrocarbon fuel is recycled to effect hydrodesulfurization.

Thus, it is evident that the fuel stream that is used as a hydrogen source for hydrodesulfurization is one that has been produced by hydrodesulfurization of the primary hydrocarbon fuel.

The Examiner acknowledges at page 3 of the Action that Buswell does not teach processing of a fuel which is essentially free of organic sulfur-containing compounds to produce a hydrogen-containing stream. The Examiner also notes that Buswell does not teach that the fuel that is essentially free of organic sulfur-containing compounds is processed without having been subjected to hydrosulfurization.

The Examiner believes that this deficiency of Buswell is addressed by Lesieur.

In support of this view, the Examiner states at page 3 of the Action that "Lesieur teaches a desulfurizing process wherein the hydrogen source can be derived from a processed fuel stream without having been subjected to hydrodesulfurization step, for example the hydrogen can be derived from a hydride bed; or from an electrolysis bed or from some other source (col. 5, lines 61-64) which could include reforming processes."

The Examiner thus concludes at page 3 of the Action:

> "Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the hydrogen (11) recycled stream in Buswell's process with the hydrogen stream of Lesieur which can be derived from a hydride bed; or from an electrolysis bed or from some other source (which could include reforming processes) as an obvious alternative absent any critical results."

In response, Applicant notes that the essential feature of claim 16 is the processing of a fuel that is essentially free of sulfur-containing compounds to produce a hydrogen-containing stream. It is also noted that the claim requires that the fuel that is essentially free of organic sulfur-containing compounds is processed without having been subjected to hydrosulfurization.

As independent claim 26 incorporates the method as claimed in claim 16, claim 26 also requires such processing of fuel.

Claim 27 is directed to a fuel cell system, and includes a fuel processor which is used to produce a hydrogen-containing stream from a fuel that is essentially free of organic sulfur-containing compounds. It is also noted that the fuel cell system does not include means for hydrosulfurization of the fuel that is essentially free of organic sulfur-containing compounds. Thus, claim 27 is consistent with claims 16 and 26 with respect to the characteristics of the fuel to be processed.

The passage of Lesieur relied upon to cure the deficiencies of Buswell describes various sources of hydrogen that may be used to supply hydrogen to a fuel prior to the fuel being passed over a sulfur-adsorption bed (see column 3, lines 49-51). The passage indicates that the source may be a hydrogen tank, a hydride bed, or an electrolysis cell which breaks down water from the fuel cell 55, or from some other source, into hydrogen and oxygen.

Such disclosure does not, however, amount to a teaching of the processing of fuel that is essentially free of organic sulfur-containing compounds to produce a hydrogen-containing stream wherein the fuel is processed without having been subjected to hydrodesulfurization.

If the source in Lesieur is a hydrogen tank, there is no disclosure whatsoever as to how the hydrogen in the tank has been produced. Likewise, with respect to a hydride bed.

The final possibility according to column 5, lines 63-64, of the reference is an electrolysis cell, but it would appear that the Examiner misinterprets what is actually taught. The possibilities are that the source may be an electrolysis cell which breaks down water from the fuel cell into hydrogen and oxygen. Alternatively, the source may be an electrolysis cell which breaks down water from some other source into hydrogen and oxygen.

Thus, the more accurate way to interpret column 5, lines 63-64 of Lesieur is that the source may be an electrolysis cell which breaks down water into hydrogen and oxygen. Clearly, this is different from the processing of a fuel which is essentially free of organic sulfur-containing compounds to produce a hydrogen-containing stream which is processed without having been subjected to hydrodesulfurization.

The Examiner suggests that the expression "from some other source" at column 5, lines 61-64 of Lesieur *could* include a reforming process. However, such an interpretation finds no factual support. The passage in question discusses electrolysis of water, and the expression "from some other source" relates instead to the *source of water*, as opposed to some other *source of hydrogen* that is to be used in the method of Lesieur.

The rejection is accordingly based on an incorrect interpretation of Lesieur, and the combined teachings of the cited references cannot be said to result in the claimed invention. Claim 16, and those claims that depend therefrom, are thus believed to patentably distinguish over the cited prior art.

With regard to claim 27, it is noted that the fuel cell system which is claimed is specifically adapted to implement the method of claim 16. In this regard, the fuel cell system is believed to be one that includes as limitations a processor that is provided to produce a

hydrogen-containing stream from a fuel that is essentially free of organic sulfur-containing compounds. It is also noted that claim 27 indicates that the fuel cell system does not include means for hydrodesulfurization of the fuel that is essentially free of organic sulfur-containing compounds.

The claimed invention is thus neither disclosed nor suggested by the cited prior art, and the rejection should accordingly be withdrawn.

Rejection of Claim 23 under 35 U.S.C. § 103(a)

Claim 23 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Buswell et al in view of Lesieur et al and Jeschke. This rejection is respectfully traversed.

In response, as claim 23 depends from claim 16, and as claim 16 has been shown above to patentably distinguish over the combined teachings of Buswell et al and Lesieur, the subject matter of claim 23 is similarly believed to distinguish over the cited prior art. The rejection is thus without basis, and should be withdrawn.

In view of the above, the application is believed to be in condition for allowance, and an early indication of same is earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Raymond C. Stewart (Reg. No. 21,066) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§ 1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

By _____
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